

AMENDMENTS TO THE CLAIMS

1. (Canceled).
2. (Currently amended) A multi-branched polymer comprising at least one block structure or graft structure represented by the following general formula (II):



wherein P² is a polar polymer chain having polyolefin side chains (A4) having and said P² has a number-average molecular weight (Mn) of 500 to 1,000,000, and P³ is a polymer chain having a number-average molecular weight (Mn) of 500 to 1,000,000, selected from a polyolefin chain having polar polymer side chains (A2), a polar polymer chain (A3) and a polar polymer chain having polyolefin side chains (A4); P² and P³ may be the same or different from each other; X¹ is a linking group containing less than 200 atoms in total and containing a group selected from an ester group, an amide group and an ether group.

3. (Canceled)
4. (Currently Amended) A multi-branched polymer comprising a star-shaped structure having three or more polymer chains bound to a central nucleus represented by the following general formula (IV):



wherein n' is an integer of 3 or more; P⁶ is a polymer chain having a number-average molecular weight (Mn) of 500 to 1,000,000, selected from a polyolefin chain (A1) obtained by

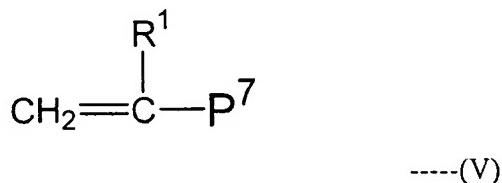
homopolymerizing or copolymerizing at least one of ethylene, propylene, 1-butene, 1-hexene and 1-octene, a polar polymer chain (A3) and a polar polymer chain having polyolefin side chains (A4); a plurality of P⁶'s may be the same or different from one another provided that every P⁶ is not the polar polymer chain (A3); and X³ is a linking group of less than 200 atoms consisting of a multifunctional low-molecular compound residue derived from a multifunctional low-molecular compound (K) selected from halogenated silane, metal halide, alkyl aluminum, glycerin, pentaerythritol, D-glucitol, quercitol, inositol, and hexahydroxybenzene,

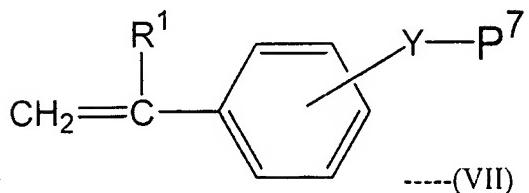
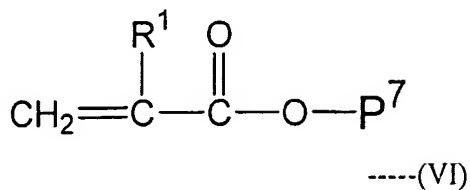
wherein the multi-branched polymer is produced by one of the following processes:

Process S-1: a process of reacting the reacting the polymer having a functional group at the terminal thereof with the multifunctional low-molecular compound (K), with the proviso that when the multifunctional low-molecular compound (K) is a halogenated silane, then the functional group of the polymer having a functional group at the terminal thereof is a hydroxyl containing group in Process S-1; and

Process S-2: a process of (co)polymerizing polymerizing an addition-polymerizable monomer (D), a ring-opening polymerizable monomer (E) and one or more monomers selected from the polyolefin macromonomers (M1) to (M3) represented by the general formulae (V) to (VII) by using, as a polymerization initiator, a multifunctional low-molecular compound having a group having an ability to initiate radical polymerization or anion polymerization, which is obtained by converting the functional group contained in the multifunctional low-molecular compound (K) into a group having an ability to initiate radical polymerization or anion polymerization;

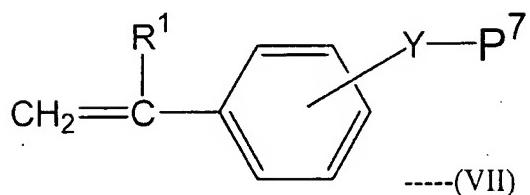
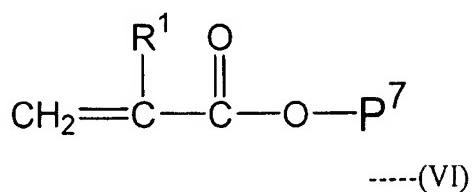
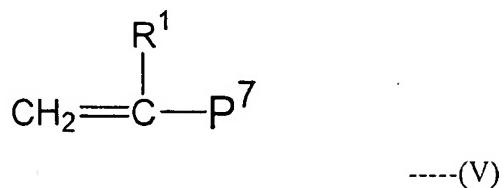
wherein general formulae (V)-(VII) are as follows:





wherein R^1 is a hydrogen atom or a methyl group, Y is a heteroatom or a heteroatom-containing group, and P^7 is a polymer chain obtained by homopolymerizing or copolymerizing an olefin represented by $\text{CH}_2=\text{CHR}^2$ whereupon R^2 is a group or an atom selected from a C₁₋₂₀ hydrocarbon group, a hydrogen atom and a halogen atom.

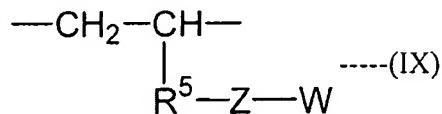
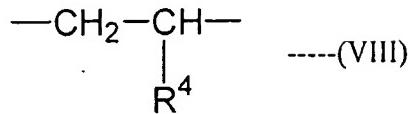
5. (Previously presented) The multi-branched polymer according to any one of claims 2 and 4, wherein the polar polymer chain having polyolefin side chains (A4) is obtained by homopolymerizing a macromonomer, or copolymerizing two or more macromonomers, selected from a polyolefin macromonomer (M1) represented by the general formula (V), a polyolefin macromonomer (M2) represented by the general formula (VI) and a polyolefin macromonomer (M3) represented by the general formula (VII), or by copolymerizing at least one macromonomer selected from (M1), (M2) and (M3) with at least one monomer (B) selected from organic compounds each having at least one carbon-carbon unsaturated bond:



wherein R^1 is a hydrogen atom or a methyl group, Y is a heteroatom or a heteroatom-containing group, and P^7 is a polymer chain obtained by homopolymerizing or copolymerizing an olefin represented by $\text{CH}_2=\text{CHR}^2$ whereupon R^2 is a group or an atom selected from a C₁₋₂₀ hydrocarbon group, a hydrogen atom and a halogen atom.

6. (Canceled)

7. (Previously Presented) The multi-branched polymer according to claim 2, wherein the polyolefin chain having polar polymer side chains (A2) comprises a unit (C1) represented by the general formula (VIII) and a unit (C2) represented by the general formula (IX):



wherein R⁴ is a group or an atom selected from a C₁₋₂₀ hydrocarbon group, a hydrogen atom and a halogen atom, R⁵ is a C₁₋₂₀ hydrocarbon group, Z is a heteroatom or a heteroatom-containing group, and W is a polymer chain obtained by (co)polymerizing an addition-polymerizable monomer (D), a ring-opening polymerizable monomer (E) and at least one monomer selected from polyolefin macromonomers (M1) to (M3) represented by the general formulae (V) to (VII).

8. (Previously presented) The multi-branched polymer according to any one of claims 2 and 4, wherein the polar polymer chain (A3) is obtained by polymerizing an addition-polymerizable monomer (D) or a ring-opening polymerizable monomer (E).

9. (Previously presented) A thermoplastic resin composition comprising the multi-branched polymer according to any one of claims 2 and 4.

10. (Previously presented) A film, a sheet, an adhesive resin, a compatibilizing agent, a resin modifier, a resin additive, a filler dispersant or a dispersant, which comprises the multi-branched polymer according to any one of claims 2 and 4.

11. (Original) A film, a sheet, an adhesive resin, a compatibilizing agent, a resin modifier, a resin additive, a filler dispersant or a dispersant, which comprises the thermoplastic resin composition according to claim 9.

12-13. (Canceled)

14. (New) The multi-branched polymer according to claim 4, wherein the multifunctional low-molecular compound (K) is selected from the group consisting of halogenated silane, metal halide, glycerin, pentaerythritol, D-glucitol, quercitol, inositol, and hexahydroxybenzene.